

PATENT APPLN. NO. 10/532,082
SUBMISSION UNDER 37 C.F.R. § 1.114

PATENT

IN THE CLAIMS:

1. (currently amended) An aggregate of nanofibers made of a thermoplastic polymer selected from the group consisting of polyester, polyamide PET, PBT, PTT, PLA, N6, N66, polyolefin and polyphenylene sulfide, wherein single fiber fineness by number average is in a range from 1×10^{-7} to 2×10^{-4} dtex and 60%, in fineness ratio, or more of single fibers are in a range from 1×10^{-7} to 2×10^{-4} dtex in single fiber fineness, said aggregate of nanofibers having a morphology of a filament-yarn and/or a morphology of a spun yarn and an orientation that extends in one dimension over a definite length.

2 - 3. (canceled)

4. (original) The aggregate of nanofibers according to claim 1, wherein 50%, in fineness ratio, or more of single fibers that constitute the aggregate of nanofibers are in a section having a width of 30 nm in diameter of the single fibers.

5 - 6. (canceled)

7. (canceled)

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8. (original) The aggregate of nanofibers according to claim 1, that has a strength of 1 cN/dtex or higher.

9. (canceled)

10. (original) The aggregate of nanofibers according to claim 1, that has a rate of elongation at absorbing water of 5% or higher in the longitudinal direction of the yarn.

11. (original) The aggregate of nanofibers according to claim 1, that contains a functional chemical agent.

12. (original) A fibrous material that includes the aggregate of nanofibers according to claim 1.

13. (canceled)

14. (withdrawn) The fibrous material according to claim 12, wherein the aggregate of nanofibers is encapsulated in a hollow space of a hollow fiber.

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15. (withdrawn) The fibrous material according to claim 14, wherein the hollow fiber has multitude of pores measuring 100 nm or less in diameter in the longitudinal direction.

16. (original) The fibrous material according to claim 12, that contains a functional chemical agent.

17. (original) The fibrous material according to claim 12, wherein the fibrous material is selected from among yarns, a wad of cut fibers, package, woven fabric, knitted fabric, felt, nonwoven fabric, synthetic leather and sheet.

18. (original) The fibrous material according to 17, wherein the fibrous material is a laminated nonwoven fabric made by stacking a sheet of nonwoven fabric that includes the aggregate of nanofibers and a sheet of other nonwoven fabric.

19. (original) The fibrous material according to claim 12, wherein the fibrous material is a fibrous article selected from among clothing, clothing materials, products for interior, products for vehicle interior, livingwares, environment-related materials, industrial materials, IT components and medical devices.

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20. (withdrawn) A liquid containing the aggregate of nanofibers according to claim 1 dispersed therein.

21. (withdrawn) A polymer alloy fiber that has islands-in-sea structure consisting of two or more kinds of organic polymers of different levels of solubility, wherein the island component is made of a low solubility polymer and the sea component is made of a high solubility polymer, while the diameter of the island domains by number average is in a range from 1 to 150 nm, 60% or more of the island domains in area ratio have sizes in a range from 1 to 150 nm in diameter, and the island components are dispersed in linear configuration.

22. (canceled)

23. (withdrawn) The polymer alloy fiber according to claim 21, wherein, among the island domains included in the polymer alloy fiber, 60%, in area ratio, or more of the island domains are in a section having a width of 30 nm in diameter of the island domains.

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24. (withdrawn) The polymer alloy fiber according to claim 21, wherein the content of the island component is in a range from 10 to 50% by weight of the entire fiber.

25 - 26. (canceled)

27. (withdrawn) A polymer alloy fiber that is a conjugated fiber comprising the polymer alloy according to claim 21 and another polymer that are conjugated together.

28. (withdrawn) The polymer alloy fiber according to claim 21, wherein the value of CR that is a measure of crimping characteristic is 20% or more, or the number of crimps is five per 25 mm or more.

29. (withdrawn) The polymer alloy fiber according to claim 21, that has Uster unevenness is 5% or less.

30. (withdrawn) The polymer alloy fiber according to claim 21, that has a strength of 1.0 cN/dtex or higher.

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31. (withdrawn) A fibrous material that includes the polymer alloy fiber according to claim 21.

32. (withdrawn) The fibrous material according to claim 31, wherein the fibrous material is selected from among yarns, a wad of cut fibers, package, woven fabric, knitted fabric, felt, nonwoven fabric, synthetic leather and sheet.

33. (withdrawn) The fibrous material according to claim 31, that includes the polymer alloy fibers and other fibers.

34. (withdrawn) The fibrous material according to claim 31, wherein the fibrous material is a fibrous article selected from among clothing, clothing materials, products for interior, products for vehicle interior, livingwares, environment-related materials, industrial materials, IT components and medical devices.

35 - 38. (canceled)

39. (withdrawn) A polymer alloy pellet that has islands-in-sea structure comprising two kinds of organic polymers of different levels of solubility, wherein the island component is made of a low

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solubility polymer and the sea component is made of a high solubility polymer, while melt viscosity of the high solubility polymer is 100 Pa·s or lower, or difference in melting point between the high solubility polymer and the low solubility polymer is in a range from -20 to +20°C.

40. (withdrawn) An organic/inorganic hybrid fiber that includes the aggregate of nanofibers according to claim 1 in a proportion of 5 to 95% by weight, wherein at least part of the inorganic material exists within the aggregate of nanofibers.

41. (withdrawn) A fibrous material that includes the organic/inorganic hybrid fiber according to claim 40.

42 - 45. (canceled)

46. (withdrawn) A porous fiber wherein 90% by weight or more of the composition consists of an inorganic material, while multitude of pores are provided in the longitudinal direction and mean pore diameter of the pores in the cross section in the minor axis direction is in a range from 1 to 100 nm.

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47. (withdrawn) A fibrous material that includes the porous fibers according to claim 46.

48 - 51. (canceled)

52. (canceled)

53. (previously presented) The aggregate of nanofibers according to claim 1, wherein the single fiber fineness by number average is in a range from 1×10^{-7} to 1×10^{-4} dtex and 60%, in fineness ratio, or more of single fibers are in a range from 1×10^{-7} to 1×10^{-4} dtex in single fiber fineness.

54-55. (canceled)

56. (previously presented) The fibrous material according to claim 12, wherein mass per unit area of the fiber is in a range from 20 to 2000 g/m².

57. (previously presented) The aggregate of nanofibers according to claim 1, wherein the thermoplastic polymer comprises polyphenylene sulfide.

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58. (canceled)

59. (previously presented) The aggregate of nanofibers according to claim 1, wherein the aggregate of nanofibers has an orientation that extends in one dimension for at least several meters.